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Original Communications.

APHASIA, AND THE PHYSIOLOGY OF SPEECH.

PART I.—APHASIA.—(Continued.)

Defective Expression.—In opposition to the limitations implied in the terms aphasia and aphemia, Dr. J. Hughlings Jackson objects that they define too clearly a group of symptoms whose boundaries must, in the nature of things, be indefinite. He thinks the various faults of speech, from disorderly articulation to incoherence of ideas, should be included under the general term "Defects of Expression," as such a generality is less likely to fetter inquiry, by giving, or pretending to give, a definition where none is possible. He says:—"It is not so difficult to show that ataxy of articulation and so-called loss of memory for words are really defects of the same kind." (*Med. Times and Gaz.*, June 23d, 1868.) He further says:—"All these various defects are disorders in a certain series of cultivated anatomical possibilities of motor and sensory centres, ascending in complexity in inter-relations and width of associations." (*Lancet*, Dec. 1, 1866.)

The objections of Dr. Jackson are fully borne out by the great individual differences observable in cases of aphasia, depending on the character, degree and location of the cerebral lesion. While accepting aphasia, then, as a useful generic term, each case should be studied in its physiological relations, to determine, if possible, at what stage in the elaboration of speech the processes are interrupted.

It is not intended to multiply examples here, since so many well-observed cases are now on record, and may be found in the papers elsewhere referred to. A glance at the varieties of defective expression will give an idea of the scope of this subject. Jaccoud, for instance, divides the "ascending series of anatomical possibilities" into five stages; or, in other terms, considers defects of expression under five forms, viz.:

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- (1) Paralysis of the tongue. (2) Loss of coördination in the motor centres. (3) Interruption of voluntary transmission. (4) Amnesia of words. (5) Sluggishness.

Dr. Bastian, in a long and interesting article on "Loss of Speech in Cerebral Diseases" (*Brit. and For. Med.-Chirurg. Rev.*, 1869, vol. 43, p. 209), presents a classification of the varieties of defective expression, and gives the following tabular synopsis. It will be seen that the five stages of Jaccoud are included essentially, with the exception of the third, the first being stated under three forms, and the fifth in terms of similar import.

Loss of Speech.	Ability to articulate unimpaired.	(1) Absence of wish to speak, as in hysteria or insanity.
		(2) Various forms of paralysis and incoördination of memory. <i>Amnesic defects.</i>
	Wish to speak existing.	(3) Memory existing, words being revived as remembered sounds, the mechanism by which these excite the automatic acts of speech is interfered with. <i>Ataxic defects.</i>
		(4) Slightly, from paralysis of the 9th nerve, &c., in cases of hemiplegia, with or without coexisting aphasia.
Ability to articulate impaired.	Gravely.	(5) In some severe cases of hemiplegia, with or without aphasia.
		(6) Advanced cases of glossolaryngeal paralysis.

Many varieties of aphasia depend on the extent of the lesion, a limited and widespread influence on the same anatomical plane producing different symptoms. In this way we may best account for the loss of memory for substantives and other parts of speech, and even for particular letters. From such partial amnesia to complete amnesic aphasia there may exist a great variety of defect. Those cases in which a single word or phrase remains, or in which there is articulation without sense, may be considered as practically complete, since no ideas are conveyed by the inappropriate use of such expressions as *yes, no, I don't know, always*, and the like, or by the utterance of such jargon as *vous, cousin, tau* or *la ta*. The few words aphasics use are generally automatic and not volitional.

The facility with which aphasic patients sometimes give utterance to oaths and other

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emotional phrases, is a singular phenomenon. Such ejaculations as *my God! ma foi! oh dear!* and the grosser oaths are common. Dr. Jackson remarks that "swearing, strictly speaking, is not a part of language. It is a habit which has grown up from the impulse to add the force of passing emotions to the expression of ideas. Although oaths differ from mere alternations of tone, in that they consist of articulate words, they are generally used in talking, not to express ideas, but to make up by force of delivery what is wanting in precision of expression. * * * * These expressions (used by aphasics) are not voluntary, as the patients cannot repeat them. The will cannot act, but somehow emotion, anger for example, gets the words passed through the convulsion of language. Just as a paralyzed foot will jump up when the sole is tickled, so the words start out when the mind is excited." (London Hospital Reports, vol. i.)

Ataxic aphasia may likewise vary in the extent to which coordination is impaired, and in its concurrent phenomena. Aphasia may be transient, or permanent, and last an hour or a life-time. It may be the only symptom, or coexist with hemiplegia, unilateral convulsions, chorea, hysteria or insanity, and depend on various lesions whose nature will determine the special characteristics of each case. The phenomena of stammering, the absence of speech in congenital deafness and idiocy, the defective speech of intoxication, general, and glosso-laryngeal paralysis, show the wide range of possible illustration. The various and complex relations of speech to the cerebral functions, render the defects of speech equally various and complex, so that however desirable such an amplification of our subject, as Dr. Jackson suggests, it is, to say the least, impracticable.

The consideration of Jaccoud's fifth stage alone, opens the whole subject of disordered ideation, and the corresponding defects of expression. It is not sluggishness merely which produces aphasia, since a voluntary suspension of the verbal impulse, in obedience to a delusion, or a fixed idea, may result in prolonged silence. The disorders of association, in all their interesting variety, are also mirrored in the consequent disorders of speech. It is probable some cases of aphasia may be due to interruption of the established association between ideas and sensory impressions, rendering the written or the spoken word unsuggestive. Dr. Bartholow mentions a case, in which the patient could speak plainly, and converse with ease. He could write, but could

not read what he had just written. Neither could he read books or papers, the visible signs of language conveying no sense to his mind. (Cincin. Med. Repertory, Jan. 1869.)

Place of Lesion.—Clinical observation has long since established the frequent concurrence of aphasia and right hemiplegia. The coincidence was first noticed in 1800, and has been repeatedly confirmed by numerous observers. In 1865, Dr. Jackson had never seen a case of aphasia and left hemiplegia, and Tronseau relates but one, which he then considered an unique case. It seems to be a fair exception, however, to the general rule, and it is necessary to admit that left hemiplegia and aphasia may supervene suddenly, at the same moment, as the sole apparent symptoms.

In 1868, Dr. J. W. Ogle published a collection of thirty cases, with the avowed object of presenting as many seeming exceptions as possible (Lancet, 1868, vols. i. and ii.) In all of them the lesion is supposed to have been on the right side of the brain. The description of the aphasic symptoms is exceedingly vague, being confined in many cases to such terms as, "articulation less clear," or "impediment of speech," or "impaired speech," &c. In many cases the defect was clearly paralytic, and it is clear the writer did not intend to limit himself by Tronseau's definition. In eleven cases the disease was found in the right hemisphere at the autopsy. In nineteen the presence of some degree of paralysis on the left side was the only evidence attainable. It is not intended to disparage Dr. Ogle's attempt, but it would be unfair to place his cases in the scale against those of true and complete aphasia without explanation.

The following table is given by Dr. Seguin.

APHASIA, WITH HEMIPLEGIA.			
Authorities.	Right.	Left.	
Tronseau, 1865, Acad. de Med.,	125	10	
Baillarger, 1865, cases from La Salpêtrière,	30	1	
Jackson, London Hospital Reports,	34	3	
Robertson, 1867, J. of M. S.,	3		
Do. Times and Gaz., Sept., 1865	2		
Archives Générale de Méd.,	2		
Dr. Austin Flint, Sr., New York Med. Record, vol. i.,	4		
New York Hospital, 1830-1867,	43	3	
	243	17	

Before seeing the above I had made a list of 176 cases with right and 11 cases with left hemiplegia. Dr. Bateman reports 63 cases of aphasia, with paralysis in 32 only: occurring 21 times on the right, 7 times on the left, and in 4 cases the locality is not mentioned. M. Dax gives 140 observations to support his view of the loca-

tion of the lesion in the left hemisphere, and M. Broca makes the proportion between the right and left as 1 to 20.

That no such proportion exists in other unilateral cerebral lesions is shown by the following facts. Drs. Charcot and Vulpian, in 110 cases of hemiplegia, found the lesion in 58 on the right, and in 52 on the left side. Andral in 169 cases of cerebral softening found the lesion in 73 on the right, and in 63 on the left side, both sides being affected in 33. Embolism is rather more frequent on the left side.

The evidence for a location of the lesion in aphasia in the anterior lobe, is less directly clinical and depends on observations of injuries before, or of lesions after death. Gall, Bouillaud, Serres, Pinel, Bohamun and others, long ago maintained such a location—and recent observations tend to confirm it. Like that of M. Dax this law is not absolute. We have seen what Bouillaud claimed for it. Of the seven or eight hundred observations which he collected, 85 were cases of lesion, of one or both anterior lobes, with loss of speech, and the rest cases of lesions in other parts of the brain without aphasia. To the 85 he adds, later, 31 cases positively supporting his law of location.

Andral states that in 14 cases collected by him of losses of speech, there was no visible alteration of the anterior lobes, the middle being affected in 7 and the posterior in 7. In 37 cases of lesion of one or both of the anterior lobes, speech was abolished in 21. (*Clin. Medicale*, p. 119.)

Forbes Winslow says he has in 54 cases detected considerable lesions in the anterior lobes, and no loss of speech, and relates two cases in which loss of speech resulted from wounds of the anterior lobes without describing the extent of lesion.

Trousseau presented to the Academy a list of 34 cases, of which 18, of course including those in favor of M. Broca's more precise location, were in accordance with the location of Bonillaud. Of the 16 opposed to it, in 12 there was no aphasia, the lesions being in the anterior lobes, and in 4 there was aphasia with lesions not affecting the anterior lobes.

According to Dr. Seguin's figures, made up to 1868, aphasia has occurred with lesions of the anterior lobes in 536 cases, of the corpora striata in 6, and of the middle and posterior lobes in 7. Aphasia without lesion has been reported in 3 cases. One by Gairdner (*Glas. Med. Jour.* June, 1866); one by Hillairet (*Jour. de Med. Mentale*, Sept. et Oct. 1866); and one by Dr. Seguin himself (*Quar. Jour. Psychol. Med.* Jan.

1868). The evidence respecting the comparative frequency of lesions in the two anterior lobes he states in detail. In 514 cases confirmed by autopsy, the lesion was found in the left anterior lobe, and in 31 cases in the right. I find, after having written the following account, that he also uses the case in illustration. I retain it because of the local interest it has excited.

The remarkable case of injury to the head, from a tamping iron, so well known in this vicinity, has an indirect bearing on the question in hand. The iron passed upwards from a point in the base of the skull $1\frac{1}{2}$ inches to the left of the median, in the junction of the lesser wing of the sphenoid and the orbital process of the frontal bone. It comminuted and removed the entire lesser wing, with one half the greater, as well as a large portion of the orbital process. The iron emerged at the middle and upper portion of the frontal bone. It entered the left hemisphere, therefore, at the fissure of Sylvius, and must have produced serious lesion of the middle and frontal lobes. There was at one time coma from the pressure of an abscess near the orbit, but at no time was there aphasia; speech being unaffected even immediately after the accident. There was no paralysis, but the mind was considerably disturbed in its balance. (*Med. Soc. Pub.*, Vol. ii. p. 329.)

This case furnishes negative evidence only, against a location in the anterior lobes, and if we suppose the iron to have passed anteriorly to the corpus striatum, and to the inside of the third convolution, the absence of aphasia would be consistent with the location of M. Broca.

The theory of M. Broca, which locates the faculty of articulate language in the third left, frontal convolution was based, as we have seen, on two cases, neither of which was purely aphemic. He has since adduced twenty cases which serve to confirm this theory (*Archives Generales*, June, 1865). Of 32 cases presented by Trousseau, 14 confirm and 18 are opposed to it. Of the latter, some of which afford negative evidence only, 11 were with, and 7 without an autopsy. He relates one case of aphasia with left hemiplegia, which was remarkable for showing a lesion confined precisely to M. Broca's location, but in the right hemisphere.

I add to the general evidence above adduced, some tables of autopsies in aphasia, selected from those cases in which the symptoms and lesions were recorded with sufficient exactness to be of value, and not with a view to support or oppose any theory of location.

No.	SEX.	AGE.	SYMPTOMS.	LESIONS.	AUTHORITY.
1	F.	32	Right hemiplegia and complete aphasia. Signs of chronic endo-pericarditis, and mitral regurgitation. Said only "Oh my," and used a few gestures. The attack was sudden.	Died four years after attack. Extensive valvular disease.—Gen. softening, more marked on left. Old yellow softening of ant. upper portion of intra-ventric. nucleus of left corpus striatum.	Trousseau and Bazin, Clinical Lect., vol. I. p. 233.
2	M.	60	Paralyzed. (Right hemiplegia by inference.) Looked as if he understood, but could only say "Oh mad," and shake his head.	Yellow softening of left hemisphere near insula of Reil, extending to post. portion of 8d left frontal convolution. Left mid. cereb. plugged.	Trousseau, Clinical Lectures, vol. I. p. 239.
3	M.	51	Aphasic 21 years. Could only say "tau tau." Right hemiplegia for ten years before death. Gestures expressive.	Cavity full of serosity, occupying a large part of left frontal lobe, and extending to middle lobe posteriorly, and inwards to insula of Reil.	Broca, first case. Bul. Soc. Anatom., August, 1861.
4	M.	54	Complete aphasia. No paralysis. Could say yes, no, three, and always. Fantomimes expressive. Used his four words with judgment. Could not guide his hand to form letters. Attack sudden. Died of fracture of femur, ten months after.	Old hemorrhagic cyst full of serosity, involving only the posterior third of the second and third frontal convolutions. Extended to the insula of Reil, but did not affect it.	Broca, second case. Ibid., Nov., 1861.
5	F.	47	Right hemiplegia and aphasia, following an apoplectic attack. Recognized persons, but could only say "tata." No lingual paralysis.	Softening of lower marginal and part of second temporal convolutions on left. Also two posterior convolutions of insula of Reil, and extra- as well as part of intra-ventric. nucleus.	Charcot and Broca, Trousseau's Clinical Lect., vol. I. p. 247.
6	F.	73	Complete aphasia, followed by right hemiplegia. Only said "yes sir." Mind impaired. Gestures inexpressive.	Left middle cerebral art. plugged, probably by thrombosis. Both art. atheromatous. Softening of post. part of left supra-ventric. nucleus. Old lesions in corpus striatum.	Vulpian, Ibid., p. 248.
7	F.	17	Sudden right hemiplegia and complete aphasia. Made a single exclamation. Died 3 weeks after.	Aneurism of left mid. cereb. art. just below the corpus striatum. Rupture into left vent. Soft vegetations of mitr. valve.	Jackson. London Hospital Rep., vol. I. p. 426.
8	M.	40	Right hemiplegia and loss of speech, occurring suddenly. No cardiac murmur heard.	Left corp. striatum was largely softened at centre. Rest of brain normal. Soft red vegetations on aortic valves.	Ogle. Med. Times and Gazette, April 30, 1864.
9	F.	21	Right hemiplegia, with defective articulation. Words clipped and running into each other. Later, used words incorrectly. Anæmic.	Plugging of both mid. cereb. arteries. Softening of left corp. striatum and of ant. part of right middle lobe. Fibrin adherent to valves of heart.	Ogle. Ibid., July 2d, 1864.
10	M.	26	Right hemiplegia and complete aphasia, occurring suddenly. Health previously good. Only said "yes" and "no." Died eleven days after.	Brain generally soft. No clots found. Mid. cereb. art. pervious. Tubercles in arachnoid near circle of Willis. Serum in left vent., 1½ oz.; in right, ½ oz.	Jackson. London Hospital Rep., vol. I. p. 441.
11	F.	40	Right hemiplegia and complete aphasia. Could only say "yabby." Had epileptiform attacks.	Effusion of blood all over surface of brain. Wasting of left ant. pyramid. Examination incomplete, but aneurism of left mid. cereb. art. suspected.	Jackson. Ibid., p. 444.
12	M.	—	Progressive right hemiplegia and failure of speech. Could write at first, but misused and mispronounced words.	Abscess in upper part of left hemisphere, with 2 oz. of pus. Brain in front of it soft as custard.	Watson. Practice of Physic, p. 512.
13	F.	13	Sudden right hemiplegia and loss of speech. Could say "ta" and "to," and make signs. Expression intelligent. No lateral or lingual paralysis. Died in a month.	Rupture of left mid. cereb. art. at fissure of Sylvius. Softening of adjoining parts of frontal and middle lobes. Posterior part of 3d left frontal convolution involved. Left corpus striatum softened.	Fox. Lancet, Aug. 11, 1866.
14	F.	47	Slight paralysis of right side and difficulty of articulation. Called "druggist," "yollet." Could not write. Began "massing" with a "C," and showed much distress at her failure. Said "I can't do it, do it." Embolism of left femoral artery.	No disease, except softening in post. part of the external or inferior (i. e. third) left frontal convolution, and in left parietal lobe. Supposed to have been due to embolism.	Saunders. Medical Times and Gazette, April 7th, 1866.

No.	SEX.	AGE.	SYMPTOMS.	LESSONS.	AUTHORITY.
15	M.	49	Right hemiplegia and complete aphasia. Only said "yes," and usually misapplied it. Never knew how to write. Died at end of a month.	Large clot found on left side, with softening extending from corpus striatum to middle cornu. Insula soft. Pia mater tore into cavity at this point, with softening extending to 2d and 3d left frontal convolutions, the transverse parietal and floor of fissure of Sylvius. Grey matter seemed intact, except at insula.	Jackson. <i>Lancet</i> , Dec. 1, 1885.
16	F.	81	Repeated apoplectic attacks, affecting the right side, with complete aphasia. Could say "yes" and "no," but misapplied them. Wrote nothing but "me" and "is."	Cavity just behind post. part. of third left frontal convolution, involving it and corpus striatum in the softening; also post. cornu of left lateral ventricle.	Edes. <i>Boston Med. and Surg. Journal</i> , Feb. 6th, 1868.
17	M.	—	Absence of speech for eight days after injury to brain from the point of an umbrella, which pierced the socket of left eye. Could write. No paralysis.	Softening and supuration of left anterior lobe, as far as to the lateral ventricle.	Bouilland. <i>Bul. de l'Acad.</i> , vol. 30, p. 524. (Raynaud.)
18	M.	—	Soldier, shot in left superciliary arch. During ten days that he lived, difficulty of articulation and complete loss of memory. Answers in monosyllables. No paralysis.	Softening, with pus and blood occupying two thirds of left anterior lobe.	<i>Ibid.</i> (Hassal.)
19	M.	—	Man died in twenty hours after a fall. "Came to himself," and showed intelligence by signs. Speech abolished. No paralysis.	All that portion of the right anterior lobe lying on the orbit was reduced to a pulp to the depth of two lines.	<i>Ibid.</i> , p. 528. (Furrier.)
20	M.	47	Loss of memory for substantives. Spoke in circumlocutions. Intelligent. No paralysis.	Large clot in right ant. lobe, with softening of convolutions. Extended from post. sup. and external portion downwards and forwards.	<i>Ibid.</i> , p. 528. (Chegoin.)
21	F.	55	Blow on left temporal region at orbital apophysis. On eighth day fever, followed by slow extinction of speech. Responded by signs. No paralysis. Died on the twentieth.	Membranes adherent over anterior third of both front. lobes, with softening beneath. An abscess in each ant. lobe in front, the right size of hen's egg, and left of pigeon's egg.	<i>Ibid.</i> , p. 527.
22	—	—	Embarrassment and then complete abolition of speech, with preservation of intelligence, as shown by signs in response to questions.	Softening of anterior inferior surface of both frontal lobes.	<i>Ibid.</i> , p. 528. (Maquet.)
23	M.	31	Fell on his feet from a ladder, and died six weeks after. Great impairment of intelligence. Gradual loss of speech, which became total. No paralysis.	Membranes tore away grey substance easily. Softening and erosions most marked on ant. and inf. surface of right frontal lobe, extending to fissure of Sylvius. Less marked in same locality on left.	<i>Ibid.</i>
24	M.	65	Could only say "oui" and "non," but understood well what was said to him. No paralysis.	Clot size of pigeon's egg, with softening at anterior, inferior & inner part of left frontal lobe.	<i>Ibid.</i> , p. 738. (Gri-solle.)
25	M.	50	Could only say "Mon Dieu" and "cabeza" (tête). Intelligence clear.	Softening of both front. lobes, including 1st, 2d and 3d frontal convolutions. Medullary substance gone. Grey matter adhering to meninges.	<i>Ibid.</i> (Gubler.)
26	M.	52	Suddenly became mute. Aphonia, with loss of motion in tongue. Intelligence preserved.	Softening in left ant. lobe of parts of 1st, 2d and marginal (3d) convolutions. Rest of brain normal.	<i>Ibid.</i> , p. 737. (Gubler.)
27	M.	53	Loss of speech and right hemiplegia. Partial recovery. Intelligence preserved.	Convolutions of left fissure of Sylvius softened and atrophied. A yellow spot in left corpus striatum.	<i>Ibid.</i>
28	F.	61	Apoplexy and right hemiplegia. Could only say "mami" and "non." Features showed intelligence. Understood what was said to her.	Destruction of the ant. half of the third left frontal convolution & the neighboring orbital ones.	<i>Ibid.</i> (Ferroux.)
29	F.	43	Entire loss of speech. Responded by inarticulate sounds. Later, could say "oui" and "non." No paralysis.	Softening of the anterior marginal convolution of the fissure of Rolando, extending to third frontal convolution. (Laf., by inference.)	<i>Ibid.</i> Tenneson.

No.	SEX.	AGE.	SYMPTOMS.	LESIONS.	AUTHORITY.
30	M.	39	Spoke unintelligibly a medley of syllables, but said "Mon Dieu" plainly. Intelligence clear. No paralysis. Had "general head symptoms."	General superficial softening, most marked on the left and anteriorly. On the right, inflammation and exudation at and near insula of Reil.	Ibid. (Parroed.)
31	F.	83	Pronounced a few syllables without meaning, and always the same. Right hemiplegia.	Cavity size of pigeon's egg in left frontal lobe. Posterior half of third left frontal convolution gone.	Ibid. (Charcot.)
32	F.	62	Right hemiplegia. Total loss of speech. Knew her friends, and nodded for "yes." Moved lips and tongue well.	Destruction of third left frontal, lower part of transverse parietal, and most of inferior marginal convolutions.	Ibid.
33	F.	61	Speech much embarrassed. Right hemiplegia. At times could only say "va si, va si." Memory and intelligence fair.	Extensive softening of inferior and lateral half of left parietal lobe, extending forward to the 2d posterior convolution of the insula of Reil and to the 3d frontal convolution.	Ibid.
34	F.	43	Sudden and complete aphasia, with right hemiplegia. No lingual or labial paralysis. Looked animated, and made signs with left hand. Died 4 months after the attack.	The third left frontal convolution was included in a softening, the limits of which are not described. M. Foville considers it a good case in support of M. Broca's theory.	Ibid., p. 736. (Foville.)
35	M.	34	Fracture of cranium. Aphemia immediate and persistent in spite of return of consciousness and ability to understand questions.	Contusion and disorganization of third left frontal convolution.	Ibid. M. Ange Duval.
36	M.	30	Could only say "yes" and "no." Talked otherwise unintelligibly and could not write. Entered hospital 7th, and on 16th had fits and sweats in the night. Slight paralysis of face on right side. Would not protrude his tongue. Soft murmur at apex of heart. Died comatose.	Extensive softening of left middle lobe, reaching the surface at the margin of the fissure of Sylvius in its horizontal part. Extended forwards to and perhaps beyond the fissure of Rolando. In centre high as corpus callosum. Arteries normal. Tricuspid valves slightly thickened.	Ogle. Lancet, Dec. 14th, 1868.
37	F.	55	Left hemiplegia for four years. Sudden aphasia, and death in five days after. Made himself understood by gestures.	Softening of rt. corpus striatum. On left side, softening of insula superficial and circumscribed, and limited to grey matter. Occlusion of artery supplying insula.	Bateman. Jour. of Mental Science, Oct., 1869.
38	F.	16	Sudden right hemiplegia and aphasia. Wrote name clumsily with left hand. Nods for "yes," &c. Mitral murmur. Death from coma, 19 weeks after.	Embolicism of mid. cereb. art. Softening of left corpus striatum, thalamus, insula and end of 3d frontal convolution. Mitral vegetations. Emboli in spleen.	Niemeyer, Times and Gazette, Jan. 8, 15 and 22, 1870.

Causes of Aphasia.—The nature of the lesion in aphasia, is of more clinical importance than its precise location. We are called on to treat, when treatment is possible, not aphasia but congestion, anæmia, hæmorrhage, rheumatism, syphilis, embolism, and the like. The prognosis, obscure at the best, also depends on a correct estimate of the character and extent of the lesion. In transient cases, we may attribute the loss of speech possibly to congestion, but more frequently to anæmia of a sudden and local character. It is certain that a stoppage of the blood supply from spasm of an artery, or from embolism, interferes as effectually with the functions of the nerve cell as congestion. A slight hæmorrhage or small emboli may also produce transient loss of speech. Reflex action, which is responsible for so many functional

derangements, is also assigned as a cause of aphasia by Dr. Brown Séquard.

Softening is found in most cases ending fatally, but is of a secondary nature. When confined to those regions of the brain supplied by the middle cerebral artery it is often due to embolism. In 1853, Dr. Senhouse Kirkes established the relation which exists between embolism and softening of the brain. He also published a case of right hemiplegia and aphasia from embolism. In 1864, Dr. J. H. Jackson advanced the theory that embolism is the usual cause of aphasia. This he set forth in a paper entitled "Aphemia in its relation with right hemiplegia and valvular lesions of the heart." (London Hosp. Rep. Vol. 1.) The cases presented by Dr. Jackson all lacked the confirmation of an autopsy. He says, "I cannot be absolutely certain that embo-

lism was the cause of the symptoms in the following cases, not even in the cases of valvular disease, but I submit that it was in most of them."

In 20 out of 34 cases he finds evidence of embolism in the circumstances of the attack, taken in connection with the existence of valvular disease of the heart. In the remaining 14 there is no other evidence than the sudden occurrence of uni-lateral paralysis in persons previously in apparent health, showing the attack to be rather the result of an accident to the nervous system, like the plugging of an artery, than of hæmorrhage from atheromatous vessels, or softened tissues.

The opinions of numerous late authorities upon embolism and cerebral softening, will be found in Reynolds's *System of Medicine* (Vol. 2, p. 453). He enumerates as causes of embolism, the fibrinous vegetations and depositions, found generally in the left cavities of the heart, or adhering to atheromatous patches in the arch of the aorta; the softening of old clots in the heart, and cancerous or tuberculous particles brought from the lungs by the pulmonary vein. Particles and fragments from these sources falling into the current of the blood, are carried to the brain most frequently by the middle cerebral arteries, these being the largest and most direct branches of the internal carotids. The immediate result of this accident is a sudden anæmia in the parts supplied by the occluded vessel. The remote effect is softening of the central portion of this region, it being furthest removed from anastomosing branches.

Thrombosis may also induce softening of the brain. It depends on contractions of the arteries, on diminution of the force of the heart, and on increased plasticity of the blood; in fact, upon all those conditions which favor local coagulation.

The danger from plugging below the circle of Willis, is inconsiderable, as Dr. Cohn's numerous observations and experiments tend to show (*Klinik des Embolischen Gefäss Kran. Kheiten*. Berlin, 1860). According to him, softening does not follow embolism of the internal carotid. Why embolism should be particularly disastrous when affecting the middle cerebral arteries, will be seen in their comparative lack of anastomosing branches with other divisions of the circle of Willis. The middle cerebral supplies the corpus striatum, and a large tract of convolutions, but the softening may be limited to the former.

According to Laborde (*La Ramollissement et la Congestion du Cerveau*, Paris, 1866),

there may be secondary softening of the convolutions due to atrophy, depending on a severance of the nerve fibres from their ganglionic connections. He attempts to show a relation between lesions of the anterior parts of the corpora striata and optic thalami and softening of the frontal convolutions. Drs. Vulpian and Charcot deny this relation. (*Physiol. Gen. et Comp. du Syst. Nerveux*, 1866, p. 658.)

It is plain that whatever be the nature of the lesion, if it specially affects the formative processes or the transmission of nervous impulses concerned in speech, aphasia must follow. There is reason to believe, that aphasia may occur independently of the grosser and visible lesions to which we have referred. "Indistinctness of speech" is noticed as a symptom of hæphestic hemiplegia, or hammer palsy, by W. F. Smith, M.D. (*Lancet*, Mar. 27, 1869), in four out of seven cases. In all these the hemiplegia, usually incomplete, was of the right side, and having no other obvious cause than the prolonged use of heavy hammers. The patients were young and athletic men, and recovered in a few months, under tonics and rest. In the seventh case the loss of speech is described more minutely. There was aphemia and agraphia. The patient called *surgeon dentist, juggery gogo*, and could not finish his name in writing, always stopping before the last letter.

In these cases the disease is rather motor than mental, indistinctness of speech being a fault of coördination, rather than a loss of memory for words. The hemiplegia may have been due to local nervous exhaustion affecting the neighboring parts concerned in speech, in some way, by extension of the lesion. I saw a case three years ago, where the chief symptoms were those of neurasthenia. There was constant facial spasm, without neuralgia, affecting the right orbicularis palpebrarum, and a misuse of words, with indistinctness of articulation, which suggested general paralysis. Upon a critical examination by Dr. Brown Séquard, there was found decidedly greater debility on the right than on the left side. These symptoms all disappeared under a tonic course of treatment, except the spasm, which nothing seems to affect.

Dr. Bartholow (*Cincin. Med. Repertory*, Jan. 1869) mentions a case of aphasia and right hemiplegia, with rigidity, due to irritative lesion, and which he attributes to lead poisoning. There was a want of evidence of the usual causes of aphasia, and there was evidence of the presence of lead in the system. The patient improved under the

use of iodide of potassium, strychnia and atropia.

Dr. Bateman mentions the following causes as having been assigned by different writers for the occurrence of aphasia, viz.: wounds, tumors, embolism, nervous shock, epilepsy, neuralgia, hysteria, reflex action, sun-stroke, extreme cold, narcotic poisoning, blood-poisoning, uremia, alcoholism, plumbism, snake bites, &c.

[To be continued.]

ULTIMUM MORIENS.

By THOMAS WATERMAN, M.D., Boston.

I AM induced to report the following autopsy by reading the accounts of irritability of the auricle on pages 68 and 75 of the present volume of the JOURNAL. The term "*ultimum moriens*," as applied to the right auricle of the heart, originated with Galen, thus showing the very ancient recognition of its post-mortem irritability.

The case occurred in 1867, when I was surgical interne at the Massachusetts General Hospital. A. T. B., et. 50, an employe on the Boston and Providence Railroad, was run over by a freight train at 6 o'clock, P.M. He died on his way to the hospital, at half past 6. There was a compound comminuted fracture of the right thigh just below the trochanters, the limb being almost severed from the body and only hanging by a portion of integument at the posterior part. The left leg was completely smashed between the knee and ankle into many pieces.

I opened the chest at 9 o'clock (two hours and a half after death). The heart was quite warm, and there were two drachms of clear serum in the pericardial cavity. On scratching or pricking the right auricle with the point of the scalpel, it contracted from the base towards the apex of the auricular appendage in an undulatory manner, the fringes of the appendage rising into sharp serrations and then subsiding again after the contracting wave had passed by. When the undulation reached the apex it rose upward, twisted upon itself with a jerk, and then instantly fell back upon the aorta from which it rose. No contraction took place, except upon the application of artificial stimuli. On scratching the apex, the wave started from this point and ended at the base, though not invariably, the contraction beginning usually at the junction of the auricle with the ventricle and ending at the apex, whenever

the stimulus was applied. There was a small, horizontal muscular projection on the auricular appendage about the size of a pea, and resembling a miniature heart, which contracted when irritated and became shortened in its long diameter from base to apex and widened laterally, behaving like the single ventricle of the frog's heart as it contracts in a horizontal position after death.

The rest of the heart was now thoroughly squeezed, to drive out any blood that might remain in its cavity, but no contractile response was elicited from the left auricle or the ventricles by the application of stimuli, electric or otherwise. At half past 9, one pole of the magneto-electric battery being applied to the nape of the neck and the other to the right auricle, a continued current of electricity was passed through. The auricle then began to contract quite rhythmically—from base to apex, as before described—at the rate of seven beats in the minute. During the next hour the auricle ceased to contract throughout its whole extent, the area of contracting tissue radiating from the point of stimulation becoming smaller and smaller in size as the irritability of the heart diminished. The heart, when opened, contained no blood, clotted or fluid, nor did the aorta. At 11, the right auricle was cut away from the rest of the heart, and at half past 11 (five hours post mortem) it still occasionally contracted feebly just at the point of irritation.

Electricity produced no effect upon the muscles of the arms, even when the poles were inserted into the substance of the muscle at its origin and insertion. On striking the biceps of either arm a sharp blow with the hand, a ridge of muscle arose, raising the skin over it, and the forearm became very slightly flexed. On repeating the same manœuvre to the muscles on the ulnar aspect of the forearm, a muscular ridge arose, the fingers were flexed and the hand was slowly pronated. A sharp blow also excited peristaltic movements in the intestines.

CITRIC ACID IN AFTER-PAINS.—Dr. J. B. Chagnon, in the *Canada Medical Journal* for May, recommends citric acid for the pains following labor, and declares that it has never failed in his hands. He gives five grains in two or three ounces of water every five hours. It acts as a nerve, and as a preventive of inflammation.—*Pacific Medical and Surgical Journal*.

Selected Papers.

ON THE VALUE OF INDIAN HEMP IN MENORRHAGIA AND DYSMENORRHOEA.

By ALEXANDER SILVER, M.A., M.D., Assistant-Physician to Charing-cross Hospital, &c.

I AM desirous of bringing the following cases before the profession not because the discovery of the value of Indian hemp in these troublesome maladies is new, but rather because it is not sufficiently well known. It is to Dr. Churchill, of Dublin, the profession is indebted for making known the excellent effects of Indian hemp in uterine disorders; nevertheless, I was led to the conclusion independently.

A woman, whose case I regret I cannot give in greater detail, came to Charing-cross Hospital complaining of violent pain in the loins, and of a persistent bloody discharge, the blood being sometimes clotted, and then giving rise to severe bearing-down pains during expulsion. This had lasted without interval for upwards of six months, inasmuch that she was greatly reduced both by the discharge and the constant pain. To get rid of the latter, all sorts of sedatives, among others the hypodermic injection of morphia, were tried locally and generally. At the same time iron was given in considerable doses, but altogether without effect. The pain was so harassing that, after having tried a variety of sedatives, I was induced to prescribe \mathfrak{M} xxv. doses of the tincture of Indian hemp, in hopes of giving some relief, and, to my surprise, when she returned we were told that the medicine had acted like magic, both pain and discharge having totally ceased after a few doses. Some iron was ordered, on account of the anæmic state of the woman, and she continued under observation for a considerable time, during which she remained quite well. Afterwards her visits were discontinued, and she has not now appeared for some months. It is perhaps fair to conclude that she remains well. Some similar cases, although not of the same intensity, yielding to the remedy in an equally satisfactory manner, an inquiry was made into the history of the drug, but neither in our ordinary works referring to the diseases of women, nor on *Materia Medica*, was mention made of it as producing good effects in menorrhagia; at last, however, it was found that hemp had been used in such cases with very good results by Dr. Churchill. Conversing with professional friends, I have found most equally ignorant on the

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matter as I had been, and I accordingly resolved to collect a few cases (a few of the most recent have been selected) as the best way of enforcing the value of the remedy.

Here is a case which is typical in its way.

CASE I.—E. B., aged 24. Married fifteen months; no family; no miscarriages. Has always been regular till she had scarlet fever in December, 1869. Since she recovered from that fever has suffered from great general debility, pain under left breast, and flushings succeeded by cold chills. Menstruates every three weeks, the discharge being sometimes scanty, at other times very profuse, accompanied by pain in the loins. Came under the care of Dr. Silver on June 10, being at the time unwell; the discharge very profuse, and accompanied by much pain. She was ordered *Tr. Cannab. Indicæ*, \mathfrak{M} xx., bis die, and found relief after the first dose; the discharge and pain speedily ceased.

June 13.—Suffers now merely from debility. To have *liq. ferri perchlorid*, \mathfrak{M} xv., in *inf. quassia*.

June 17.—No return of flow; debility still continues; much frontal headache. Iron does not suit; to have quinine.

July 5.—Headache nearly gone, and much better otherwise. Flow begun again, normal. A little pain in the back. To have quinine again.

No. 2 is also satisfactory, and would have been more so had the woman been better fed; still she has greatly improved.

CASE II.—C. H., aged 39, married twelve years; one child aged 11 years; six miscarriages, occurring generally between the sixth and seventh month; last miscarriage last February. General health good; menstruation always regular. Husband healthy; occupation, straw-hat maker. For the last nine months has lived rather low, husband being out of work. After each miscarriage discharge profuse, continuing about a week. Just before the time of the last menstruation (May 18) received a sudden fright, and immediately became unwell. The discharge was more profuse than usual, and was accompanied with pain in the loins. Came under Dr. Silver, May 24, and was ordered the *Tinct. cannab. Indicæ*. Found relief after the first three or four doses, losing the pain and discharge. Had first dose of medicine on May 24, continued it till June 6. Feels now very well, with the exception of slight debility.

June 21.—Flow recurred; scarcely any pain, only very slightly in the back; no clots as formerly.

July 6.—Flow lasted nearly a week;

very little pain—not more than when in usual health; has felt tolerably well since, but lacks strength; not over well fed.

These two cases, although satisfactory in one way, are not so striking as might be, the excessive flow not having continued so long as in the first case noted. The following is in that respect more striking, and illustrates the speedy and efficacious action of the hemp in proper cases. It will be remarked that when the discharge recurred at the normal time the patient was in the country, and not under treatment. Had she been at the Hospital she would have been ordered the hemp in smaller doses for the relief of the pain. The age of the patient is another feature in the case worthy of note, although not unfrequently the menstrual flow continues until a considerably more advanced age.

CASE III.—A. C., aged 51, married; has been married thirty years; had six children. One child was born at the eighth month of pregnancy, lived four days after its birth. Two other children born at full time lived only a few hours after birth. Father and mother both living—father in good health, the mother bedridden. Has worked very hard as charwoman up to three or four years ago. Began to menstruate when 18 years old. Previous to that time suffered very much from pain in head, back, and side. Had her first child in her 20th year, and her last in her 27th year. Ever since that time has been subject to a pain in the left groin. It would come and go, and was accompanied by a swelling in that region. When the swelling went, the pain went. She had then a nasty yellow discharge lasting perhaps a week. Yet during all this time she was regular to the day, and continued to be so until March 17, when, being unwell at the time, an alarm of fire was given, and as she was the only person in the house, she was greatly alarmed. From that time up to May 10 she continued to be ill, sometimes more, sometimes less. The discharge was passed partly clotted, and with great pain. When seen first she was ordered a tonic, but that did no good. On May 10 she had tinct. cannabis Ind. \mathfrak{xxv} . bis die (Tuesday). On Thursday the discharge stopped. Since then she has been quite well, but weak, till she went into the country. After being there a week, the flow recurred, with a good deal of pain and partially clotted; this occurred on June 4. It lasted six days, and the pain was severe; but the flow ceased at the normal period, and she is now (June 21) well, but weak. To have steel.

The above cases might be called appropriate for the use of the remedy in every respect, the menorrhagia being merely functional, as we term it, and not dependent on any organic mischief. But even in those instances where there is local mischief in the shape of tumors or malignant disease, the hemp still asserts its influence over the sanguineous discharge, but only for a time. Upon the whole, therefore, if the hemp be given repeatedly, each time arresting the discharge and relieving pain, but when omitted these again recur, there is just cause to suspect the existence of uterine mischief other than merely functional disturbance. Thus, in a case of uterine fibroid tumor of great size, rising nearly to the umbilicus, and, of course, elongating the body of the uterus, the periodic flow was greatly increased, and the patient was consequently much weakened; even here the hemp proved satisfactory in arresting the discharge, but not in preventing its recurrence. In another instance, where the discharge proved intractable, a small polypoid growth was discovered, and removed, to the relief of the patient; but perhaps the following case exhibits those features in such a fashion as best to impress them on the mind:—

CASE IV.—E. M., aged 38; married seven years; no family; three miscarriages within first three years of married life, occurring about the fifth month; always healthy; husband healthy. After the last miscarriage she was quite regular till the end of last summer (1869), when, without any assignable reason, the flow became much more frequent and abundant, and was accompanied with much pain in the back, worse just before the usual period. Instead of being fluid, the flow became clotted, but there was no special bearing-down pain. Gradually she became weaker, and the flow came once a fortnight, and sometimes oftener. She applied to Dr. Hutcheon, of Priory-road, Wandsworth-road, Lambeth, and got relief from her pain, but there was no change in the flow. He afterwards brought her to me, when she was ordered Cannabis Indica, with speedy relief. She took in all three or four doses, but again the discharge returned. The remedy was repeated with a like result. The following note bears date:—

June 10.—After four doses (\mathfrak{xx}) the flow again ceased, but a white discharge succeeded. She left off the medicine, and again the discharge recurred. To have Cannabis and Iron alternately.

17th.—The Cannabis has again arrested

the discharge, but the flow returned soon after with clots and bearing-down pain. She has now a very great discharge, but is well otherwise. To have Cannabis with Ergot and Iron alternately.

By this time, suspecting something more than mere functional disturbance, I was anxious to procure a more exact knowledge of the origin of the discharge, but the condition of the woman precluded anything like a vaginal examination. Still as the hemp had always been successful in arresting the sanguineous flow, it was given in somewhat increased doses with the usual result.

24th.—Has taken Cannabis twice a day. Flow stopped completely on Tuesday. To-day was examined by Dr. Black, Physician Accoucheur, Charing-cross Hospital, who found malignant disease of the cervix involving the os uteri and beginning to invade the vagina.

The origin of the discharge, both colored and colorless, was thus accounted for.

This case serves to show how far we may rely on the drug for arresting sanguineous uterine discharges from whatever cause; it also shows that it may be employed to facilitate uterine examinations which might be otherwise objectionable.

A certain number of practitioners, I find, have been in the habit of using this remedy, especially for painful menstruation not being mechanical. Dr. Hunt, of Hoxton-house Asylum, assures me he has given it in over a hundred cases, and never knew it to fail after the third dose in relieving pain and discomfort.

The dose I ordinarily prescribe is twenty minims of the tincture. It is best given in combination with aromatic spirit of ammonia.—*London Med. Times and Gazette.*

Medical and Surgical Journal.

BOSTON: THURSDAY, SEPTEMBER 8, 1870.

AMERICAN SURGERY IGNORED.

Dr. J. R. Bree published in the *London Lancet* for June 4th, 1870, an article entitled "Nitrous Oxide Gas in Excision of the Mamma." The details of the operation were not different from that usually performed. The gas was inhaled for six minutes and fifty seconds. It required one minute and twenty seconds to thoroughly

narcotize the patient. Dr. Begg observed that "there was slight lividity of the face and slight rigidity of the muscles (much less than I have seen when chloroform was employed)"; "there was no sickness, headache, or vomiting;" the patient "expressed herself as quite comfortable when she got to bed." Dr. B. also makes the following statement:—

"But although the gas has proved a success in this case—and this is the largest operation on record in which it has been given—it yet remains to be proved whether in operations requiring a longer time for their performance it would prove as safe as the anesthetics now commonly administered."

We refer Dr. Begg to the account of an excision of the breast, performed while the patient was under the influence of nitrous oxide gas, at the Massachusetts General Hospital, in 1848, and published in this *JOURNAL* for Feb. 18th, 1868. In this, as well as in one performed subsequently and reported in this *JOURNAL* for March 5th, 1868, where the patient was under the influence of the gas for nineteen minutes, the phenomena observed corresponded closely with the description of Dr. Begg. Dr. Marion Sims performed the operation at Paris in the latter part of 1867, and used nitrous oxide gas as an anæsthetic.

HOSTES, DUM VULNERATI, FRATRES.

We are in receipt of a letter and enclosures from Dr. Edward A. Crane, Secretary of the American International Sanitary Committee at Paris, in response to our Editorial of August 4th. We extract a paragraph from his communication for our readers.

"The present moment has seemed particularly favorable for the introduction into European armies of those principles of sanitary science which, during our own war, were so universally as well as advantageously enforced in hospitals and in camps, as also for the introduction of whatever American hospital appliances are superior to those used in European armies. Very few persons are acquainted with the comparative excellence of nearly all the material used by the American government in the interests of its sick and wounded. Our tents and ambulance wagons especially are unrivalled, and we shall spare no pains

to make known here the immense advantages to be derived by employing the same."

"We have just received from New York the U. S. hospital tents, and with these we shall commence our field hospitals."

The following correspondence, also, cannot fail to be of interest, as indicative of the kind of work upon which the American committee is engaged.

15 Rue de la Paix, Paris,
DR. MARION SIMS, July 28, 1870.

Dear Sir,—On the 18th of July a committee was appointed at a meeting of American citizens held in Paris for the purpose of acting in connection with the "American Association for the Relief of the Misery of Battle-fields," the *Société de secours aux blessés*, and other kindred societies.

This committee, assured of the cordial support and coöperation of the French *Société de secours aux blessés*, is now occupied in making such preparations as seem most necessary and indispensable to the accomplishment of its proposed object, which is, to give aid and succor to the wounded of all armies during the existing war.

The several ways in which such aid and succor may best be given, time and experience will show us. It seems, however, to be desirable, at the opening of this war, to offer some material evidence of that sanitary and surgical practice which, during our own late war, was followed by results as unusual in the history of military medicine as they were highly gratifying to us. Such evidence can be given by the establishment of a field hospital, which shall be under the direction of American surgeons and attendants, as also by a proper exhibition of those appliances, modes of operating and of treatment which have secured for conservative surgery a lasting reputation in the United States.

To accomplish this part of our plan the services of a surgical staff must be obtained. We accordingly write to you to-day for the purpose of soliciting your coöperation in the formation of such a staff, the immediate direction of which in the field we should be most happy to assign to you as its chief, should it be agreeable to you to accept the duties connected with that position.

Believe us, yours very sincerely,

THOMAS W. EVANS, Chairman.

EDWARD A. CRANE, Secretary.

COL. JAMES M'KAYE,
ALBERT LEE WARD,
THOMAS PRATT, } Committee.

47 Faub. St. Honoré, Paris,

July 29, 1870.

Gentlemen,—I do not feel at liberty to decline the position you offer me as chief of your surgical staff. I therefore accept the appointment, and will at once enter upon its duties. Believe me, yours, &c.

J. MARION SIMS.

Messrs. Evans, Crane, Ward, M'Kaye, Pratt, Committee.

THE MAGIC LANTERN APPLIED TO THE DEMONSTRATION OF DISEASES OF THE SKIN.—M. de Valcourt, of Cannes, writing to *L'Union Médicale*, says:—

"I had the opportunity recently of witnessing a curious exhibition given by Dr. Squire, of London, one of the most distinguished of the English dermatologists. He had invited his *confrères* to test the utility of the magic lantern in demonstrating the diseases of the skin. The meeting was held in the Polytechnic Institute, a kind of conservatory of arts and sciences, containing large galleries filled with various philosophical apparatus, and with geological specimens and other scientific collections. Two halls, communicating with the museum, are used for such scientific reunions as the present, and sometimes for more popular exhibitions. In the largest of these halls fifteen hundred doctors were assembled.

"The Professor commenced by explaining his object in proposing photography and the magnifying glass for medical demonstrations. There are, he said, two ways of teaching pathology: on the one hand, didactic courses in which the professor enumerates the symptoms and demonstrates the diagnosis, with no other means of illustration save his own language; on the other, the hospital clinic, where the patients furnish visible examples of the various diseases. The advantage of the former method is that it permits the lecturer to adopt a systematic course of instruction and to address a great number; but it is very fatiguing for all and is imperfect in many points where oral explanation cannot take the place of observation. The second mode, though better than the other in that it provides living, visible illustrations, does not leave the lecturer the choice of his subject; he must speak on the case before him, and, more

over, if the class be numerous, everybody cannot get near enough to see distinctly. For these reasons, and in order to combine the advantages of both methods, Dr. Squire has had made transparent, colored photographs of patients with diseases of the skin, and with the help of a magic lantern he uses them for medical instruction.

"The apparatus, illuminated by means of the oxy-hydrogen light, gives an astonishing effect in clearly defining the smallest details without any alteration of the colors. The Professor exhibited several of the most common typical diseases; there were among others two pictures of a syphilitic subject taken at a six months' interval, and showing thus on the same individual the disease in its primary and later stages. This could not be done as well by any other method. The success of the exhibition was complete, and was very gratifying to the learned Professor, who, as long ago as 1864, published an atlas of photographic views of skin diseases, many plates of which will bear comparison with those of the collection more recently issued with such favor in France by MM. Hardy and de Montinèja.

"During my trip in the United States, I was struck with the beauty of the large colored plates which are in general use by the professors in the medical schools in their lectures. Prof. Bigelow, of Boston, showed me a score of large views for demonstrating the regional anatomy of the perineum, and to show also the various layers of tissue traversed by the instruments in performing lithotomy. The students could thus follow each step in the operation, a matter of impossibility upon the patient alone. The usefulness of these methods is equally obvious in surgery, in medicine, in anatomy and in chemistry."

Mons. DESORMEAUX, in an essay on cancer of the larynx, arrives at the following conclusions:—

"1st. Cancerous tumors of the larynx, being generally, if not always, composed of epithelial tissue, which offers greater chances of cure than true cancerous growth, one should never hesitate to operate for their removal when entire extirpation appears possible.

"2d. The symptoms manifested, the progress of the disease, and especially examination by means of the laryngoscope, will enable us to reach an almost positive diagnosis; and, supposing even that there be an error in determining the nature of the morbid growth, the moment the tumor threatens suffocation to the patient, there is an indication to resort to an operation provided it be impossible to destroy the growth from above.

"3d. This operation is laryngotomy. We should not hesitate to freely open the parts, in order to attack the tumor with advantage and to effectually destroy it.

"4th. The danger in laryngotomy is slight. The fear of changing the voice, even of inducing complete aphonia, should not deter when the disease in question necessarily terminates fatally.

"5th. When the affection originates in the larynx, removal may be attempted whenever it has not extruded above the upper orifice, a point to be determined by the laryngoscope, and so long as it has not broken through the cartilaginous case which for a long time resists its inroads. This last stage of the disease is recognized by the increased size of the larynx, and by an irregularity of form and an abnormal firmness.

"6th. When these symptoms make it clear that complete extirpation is out of the question, or when the adjacent glands are enlarged, tracheotomy is the only resort, in order to avoid suffocation and to prolong the life of the patient.

"7th. After laryngotomy and the destruction of the tumor, a tube should be kept in the trachea long enough to make sure that there is no recurrence. The opening thus maintained allows free exploration of the larynx from below upward, and the cauterization of doubtful points; and, moreover, if the necessity for laryngotomy recurs, it simplifies the operation."

CANCER OF THE LUNG.—By ARTHUR LEARD, M.D., M.R.I.A., Senior Physician to the Great North'n Hospital.—Cancer of the lung is a disease of sufficiently rare occurrence to make the following case worth recording:—

An agricultural laborer, about sixty-eight

years of age, was admitted into the Great Northern Hospital, May 29, 1869. He was a man of spare build, and stated that he had been always healthy until about two months previously, when he began to suffer from cough and oppression at the chest and to expectorate blood. Before coming to the hospital he had been under the care of Dr. Barrington, of Bexley Heath, and he had also been for some time an out-patient at St. Bartholomew's Hospital.

His state on admission was as follows:—He was thin and feeble, voice very weak, aspect that of hectic fever, rather than of malignant disease, pulse quickened, decubitus on the left side. He complained of pain in the right side of the chest, and had a troublesome cough. The sputa were copious, viscid, blood tinged and had an offensive smell.

On the right side in the space between the clavicle and the lower edge of the second rib tenderness on pressure, complete dullness on percussion, and absence of respiratory sounds were observed. Vocal fremitus was not affected. Below the second rib the breath and percussion sounds were normal. Posteriorly on the same side a tumor which had been first noticed a week previously, of the size of half a goose's egg, was seen bulging from under the scapula. The long axis of the tumor which encroached upon the edge of the axilla was perpendicular and extended two inches lower than the dullness anteriorly. The tumor was slightly tender on pressure, of firm consistence and perfectly dull on percussion. The intercostal spaces below the tumor were normal. No enlarged glands could be detected anywhere. The patient attributed the tumor to having strained himself by working at a straw-cutting machine. The diagnosis was cancer of the lung with continuity of growth between the cancerous organ and the tumor.

On June 4th, the anterior dullness extended downwards to the upper edge of the third rib, and hæmoptysis was increased. Three days later the dullness on percussion extended downwards to the lower edge of the third rib. Cough more troublesome, but less hæmoptysis. Six days afterwards the anterior dullness had made no progress. The patient had of late been obliged to sleep well propped up, and he was failing in strength. Three days from this date hæmoptysis to a considerable extent occurred, and his right hand and arm were œdematous. The anterior dullness was unaltered. Eight days still later he was in every respect worse; the anterior dullness extended to the upper margin of the fourth rib, and the tumor

was considerably enlarged. On the fourth day afterwards he died from exhaustion.

Post-mortem Examination.—The body was emaciated, while the right arm and forearm were very œdematous. The skin over the tumor, which was the size of half a cocoa nut, was of natural color, and no dilated veins were anywhere noticed. The external edge of the right scapula was raised from its proper position by the tumor. By firm pressure near the anterior margin of the axilla, the ends of the second and third ribs were felt projecting as if broken off.

The right pleural sac was found to contain much serum. The lung bulged forward, and it was seen that two thirds of the lung superiorly had been transformed into an encephaloid mass, which, from its intimate union with surrounding parts, it was impossible to remove from the body without disruption. The external tumor was ascertained to be formed by an extension of this mass, into which portions of the first, second, third, and fourth ribs had been, as it were, fused. The ends of the ribs, both anteriorly and posteriorly, were jagged at the points of severance, and irregular with regard to each other. The posterior end of the third rib in particular was not more than two inches from the spinal column.

The cancerous mass was white and pul-taceous, breaking down very easily on handling. Under the microscope it was found to be mainly composed of small nucleated cells. It is worth notice that, while examination of the sputa during life yielded cells of the same character, they were considerably larger in size and their contents were of a darker color, a circumstance probably to be attributed to the passage of the cells from the more saline fluid of the cancerous mass into the less saline fluid of the bronchial tubes. In the left lung nothing abnormal was discovered with the exception of a single deposit of a chalk-like substance, the size of a pea, on the external part of its inferior lobe. The heart, kidneys and the liver were normal, and no cancerous glands could be discovered.

Remarks.—The progress of the malignant growth was rapid, although intermittent. This was shown by the increased breadth of the zone on the anterior part of the chest, marked by dullness on percussion, and absence of breath sounds, and also by the enlargement of the tumor. In six days from the patient's admission this zone progressed from the lower edge of the second to the lower edge of the third rib. No progress was then made in this direction for several days, after which the growth was again ac-

tive. Edema of the right arm was plainly caused by obstruction of the axillary veins by the tumor. Pain was not an urgent symptom, but this is not unusual in visceral cancer. The absence of glandular enlargement and of dilated veins is worthy of notice. In some of its features, such as emaciation, night sweats and hæmoptysis, the case resembled phthisis. But the rapid infiltration of the lung, the pain, the side upon which the disease was developed—since cancer attacks the right more frequently than the left lung*—and above all the tumor, pointed to malignant disease.—*The Medical Press and Circular*.

DISLOCATION OF HIP JOINT OF NINETY DAYS STANDING, SUCCESSFULLY REDUCED. By Dr. H. H. KIMBALL, Minneapolis, Minn.—A young girl of ten years, residing about ten miles in the country, was brought into town May 25th, to receive treatment for what her parents supposed to be disease of knee and hip joints. The following morning I was consulted. Patient complained of lameness and soreness of the joints, and impaired mobility of same. After close interrogation, I learned from the child's parents that on March 2d she fell upon the ice, striking upon her right side. The injury and shock at the time were considerable, consequently the patient was put to bed and the proper treatment for swelling and soreness instituted. She lay for some time without much improvement, but in April she was allowed to move about, although doing so with difficulty. Notwithstanding the characteristic deformity, the pain upon motion, the want of corresponding symmetry in the hips, her medical and domestic attendants failed to discover the true difficulty. After my interview with patient and parents, I called the attention of my partner, Dr. Goodrich, to the symptoms of dislocation, and he at once agreed with me in my diagnosis. As soon as the fact was made known to the family, the question came from the anxious parents, "what can be done?" Considering this one of the cases where a conscientious surgeon cannot withhold that interference which gives his patient the only possible chance for recovery, I promised to make an attempt to reduce the luxation.

Saturday, May 28th, was appointed for the operation. I invited Drs. Goodrich, Hill and Lindley, of this place, to witness the trial. As soon as the patient was completely etherized, I proceeded to manipu-

late, adopting the usual method for this kind of luxation, the head of the bone being in the thyroid foramen.

The main point of interest in this case is the length of time that the dislocation had existed prior to reduction; the query naturally follows, whether or no the acetabulum is so filled that there will hereafter occur spontaneous luxation?

The patient is still at rest and doing well. The joint is movable and symmetrical.—*The Northwestern Medical and Surgical Journal*.

We have no doubt the case in question was one of coxo-femoral articulation—but we regret that the report is not more full in the description of the case, the details of the operation, and the appearance of the parts after the reduction.

DOUBLE VAGINA. By J. C. DAVIS, M.D., Fort Atkinson, Jefferson county, Wis.—Miss E., of Rock county, in this State, aged twenty-one years, of medium size, and apparently of a good constitution, called at my office to consult me in regard to her health, which she stated had been failing for the past two years, in consequence of having taken cold during menstruation, which brought on prolapsus uteri, as she had been informed. But upon examination per vaginam, I found it to be retroversion of the uterus; and when attempting to replace the same, I discovered a septum commencing at the mesial line (in a line from right to left), attached to meatus urinarius, and extending laterally and posteriorly two-thirds of the way to the fourchette, and within the vulva and hymen.

The external genital organs are well developed. The mons veneris well covered with hair. The labia majora and minora are perfect.

The internal attachment commenced within that of vagina to uterus, and extended half around to anterior and posterior mesial line, thence by its edges to anterior and posterior vaginal walls, leaving the os uteri in the right vagina (or vagina proper), which is of normal size, shape and capacity.

—*Chicago Med. Journal*.

THE council of the Royal College of Surgeons, London, has decided to receive certificates of professional education for the fellowship and membership of the college, from the Harvard Medical School, and the Medical Schools in New York and Philadelphia.

* Intra-thoracic Cancer. By J. Cockle, M.D. *Churhill*, 1865. Page 68.

Medical Miscellany.

DEATHS FROM CHLOROFORM.—Mr. William W. Leonard, a young merchant of Lake Street, Chicago, died in that city recently from the effects of chloroform which was administered by Dr. Beebe, for the purpose of removing a cystic tumor over the left eye of the deceased. The operation was nearly completed, when Mr. Leonard suddenly threw back his head, his neck became stiff, and he gasped. Efforts were made to restore him, but without avail. In half an hour he was dead. A coroner's inquest brought in a verdict of death from paralysis of the heart, produced by the inhalation of chloroform.—*Boston Daily Transcript*.

A case of death from chloroform is reported from Liverpool. The patient, a man of 42, was admitted into the Royal Infirmary, suffering from disease of the right foot. An operation was deemed necessary, and chloroform was being administered, when he sank rapidly and died in a few minutes. The post mortem revealed diseased heart and kidneys.—*Lond. Med. Times and Gazette*.

RELIEF TO THE SICK AND WOUNDED.—A meeting was held on Thursday afternoon, Aug. 4, at Willis's Rooms, under the presidency of the Duke of Manchester, for the purpose of organizing a society for the relief of the sick and wounded of all nations in war, similar in principle to the American Sanitary Commission. The meeting was addressed by the Earl of Shaftesbury, Field-Marshal Sir J. Burgoyne, Colonel Loyd-Lindsay, Sir H. Verney, Lord Eliot, Monsignore Capel, Dr. Pollock, Dr. Mayo, Captain Galton, Captain Burgess, and others. Resolutions were passed establishing a central committee in connection with the conference of Geneva, and adopting the badge and flag of the international society, which has its headquarters there. It was determined to lose no time in ascertaining the mode in which personal and material assistance could be most acceptably rendered to both sides.—*Ibid*.

A STRANGE case of hydrophobia is reported in one of the Sheffield papers. Last week two children were sleeping in a field, when a donkey, which had been grazing in the same enclosure, seized one of them by the leg, shook it savagely, and then carried the little creature several yards. So severely was the leg lacerated that the child was taken to the hospital, where convulsions quickly supervened and death put an end to its sufferings. The house-surgeon, Mr. Algernon Taylor, gave it as his opinion that the donkey must previously have been bitten by a mad dog. The verdict was death from hydrophobia.—*Dublin Medical Press and Circular*, Aug. 10.

HEALING WOUNDS BY TRANSPLANTATION.—We have authority for announcing that Professor Frank H. Hamilton has already tested the method of healing denuded surfaces by transplanting a small piece of skin from elsewhere, in more than thirty cases at Charity Hospital, varying the operation in many ways, with the view of determining which may be the best method of performing

it. Of course, it is too soon to speak confidently of the results as yet; but we are at liberty to state that two of the cases may even now be pronounced undoubted successes.—*N. Y. Med. Gaz.*

DETECTION OF LOGWOOD IN WINE.—M. La-peyere, having observed that hematine, the coloring principle of logwood, gives a sky-blue color in the presence of salts of copper, proposes the following test for logwood in wines:—Paper is saturated with a strong solution of neutral acetate of copper, and dried. A strip of this is dipped into the suspected liquor, and, after removal, the adhering drops are made to move to and fro over the paper, which is finally to be carefully dried. If the wine contain logwood, the paper will assume a violet-blue color. On the contrary, if the wine possess its natural coloring matter, the paper will have a gray tint.—*Jour. de Pharm. et Chim.*

A MARBLE bust of the late Maurice H. Collis, M.D., has been placed in the Meath Hospital, Dublin, of which institution he was one of the Surgeons.—*Canada Medical Journal*.

THE AMERICAN PHARMACEUTICAL ASSOCIATION holds its 18th annual meeting at Baltimore on the second Tuesday (the 13th day) of September.

TO CORRESPONDENTS.—Communications accepted:—Case of Locomotor Ataxia—Rational Medicine in England—Spontaneous Dislocation of Femur; Reduction after several Months.

MARRIED.—In Paris, France, 17th ult., Dr. Frank Wells, of Boston, to Miss Gertrude Hunkeler, of Mendville, Pa.

Deaths in fifteen Cities and Towns of Massachusetts for the week ending Sept. 3, 1870.

Cities and towns.	Total.	Cholera Infantum.	Con- sump- tion.	Dysentery & Diarrhea.	Typhoid Fever.
Boston . . . 136	40	14	13	9	
Charlestown 24	10	1	1	1	1
Worcester . 14	4	3	0	0	0
Lowell . . . 22	4	4	1	1	1
Milford . . . 9	0	1	0	0	0
Chelsea . . . 3	1	0	0	0	0
Salem . . . 14	3	3	2	1	1
Lawrence . . 9	1	3	0	2	
Springfield . 5	0	0	0	1	
Lynn . . . 12	5	2	0	1	
Fitchburg . . 9	1	0	1	1	
Taunton . . . 6	0	4	0	0	
Newburyport 5	0	1	1	0	
Somerville . . 9	2	1	0	0	
Haverhill . . 16	4	3	3	0	
	293	75	40	22	19

GEORGE DERRY, M.D.,
Secretary of State Board of Health.

DEATHS IN BOSTON for the week ending Saturday, Sept. 3d, 136. Males, 69; females, 67. Accident, 5—apoplexy, 1—disease of the bowels, 2—congestion of the brain, 1—disease of the brain, 2—bronchitis, 2—cancer, 1—carbuncle, 1—cholera infantum, 4—consumption, 14—convulsions, 3—croup, 2—cyanosis, 1—debility, 2—diarrhea, 11—dropsey of the brain, 3—dysentery, 3—erysipelas, 1—scarlet fever, 3—typhoid fever, 9—hemorrhage, 3—disease of the liver, 1—congestion of the lungs, 2—inflammation of the lungs, 3—marasmus, 4—meningitis, 1—old age, 3—premature birth, 2—scrofula, 1—teething, 1—unknown, 8—whooping cough, 1.

Under 5 years of age, 67—between 5 and 20 years, 5—between 20 and 40 years, 13—between 40 and 60 years, 17—above 60 years, 14. Born in the United States, 90—Ireland, 26—other places, 11.